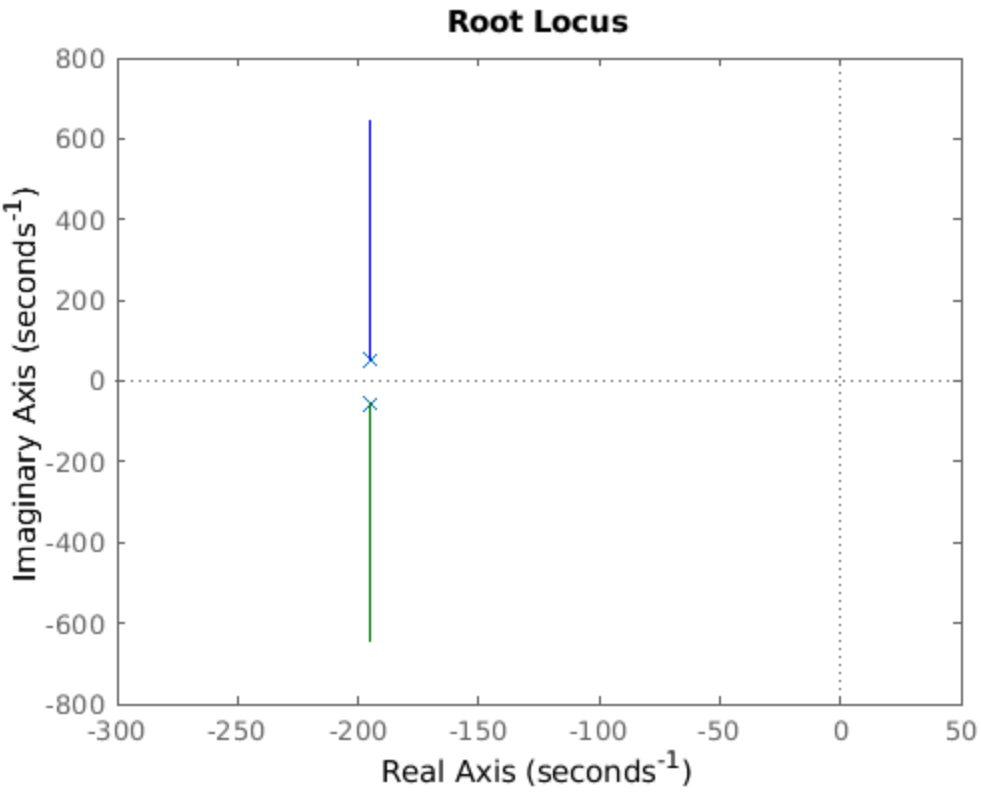
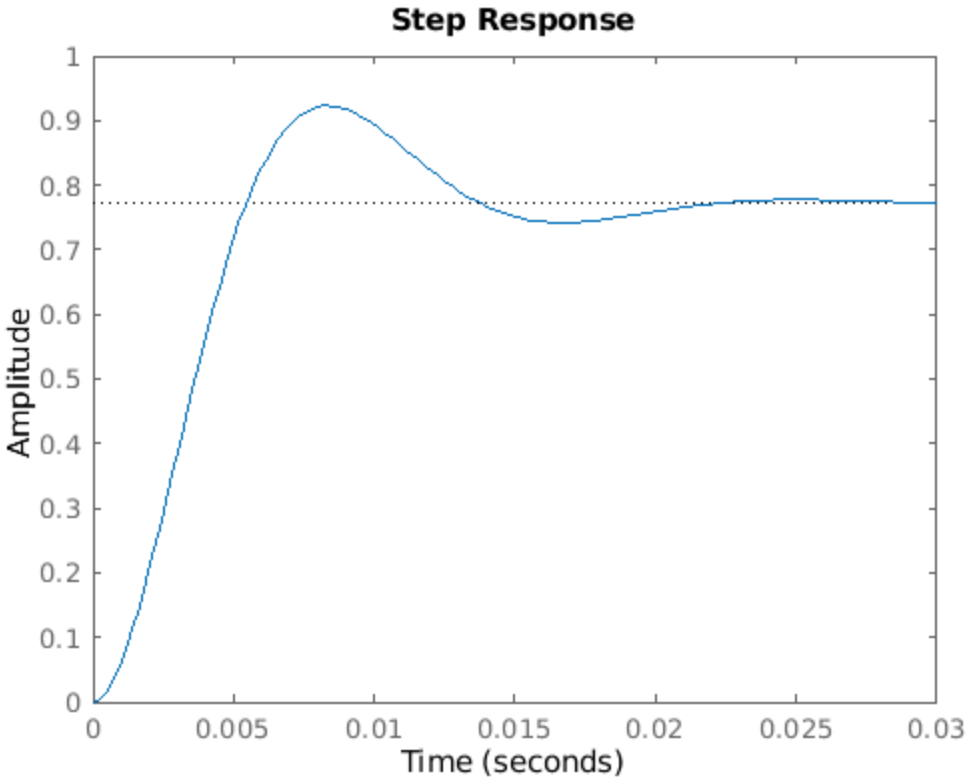
```
Kt_spec = 13.7; % oz-in/A ... torque constant from spec
Kv_spec = 10.2; % V/krpm ... voltage constant from spec
Tmax_spec = 2.82; % N-m ... max (stall) torque from spec
Omax_spec = 628; % rad/s ... max speed (no load) from spec
N_oz = 0.278013851; % N/oz
m_in = 0.0254; % m/in
Kt_si = Kt_spec*N_oz*m_in; % N-m/A
rads_krpm = 1e3*2*pi/60; % (rad/s)/krpm
Kv_si = Kv_spec/rads_krpm; % V/(rad/s)
Jm = 56.5e-6; % kg-m^2 ... inertia of rotor
Bm = 16.9e-6; % N-m/s^2 ... motor damping coef
R = 1.6; % Ohm ... armature resistance
L = 4.1e-3; % H ... armature inductance
TF = Kv_si; % N-m/A ... trans ratio/motor constant

A = [-Bm / Jm, TF / Jm; -TF/ L, -R / L];
B = [0; 1/L];
C = [1, 0];
D = [0];

plant_ss = ss(A, B, C, D);

plant = tf(plant_ss)
```

```
plant =

          4.205e05
  ------------------------
  s^2 + 390.5 s + 4.107e04

Continuous-time transfer function.
```

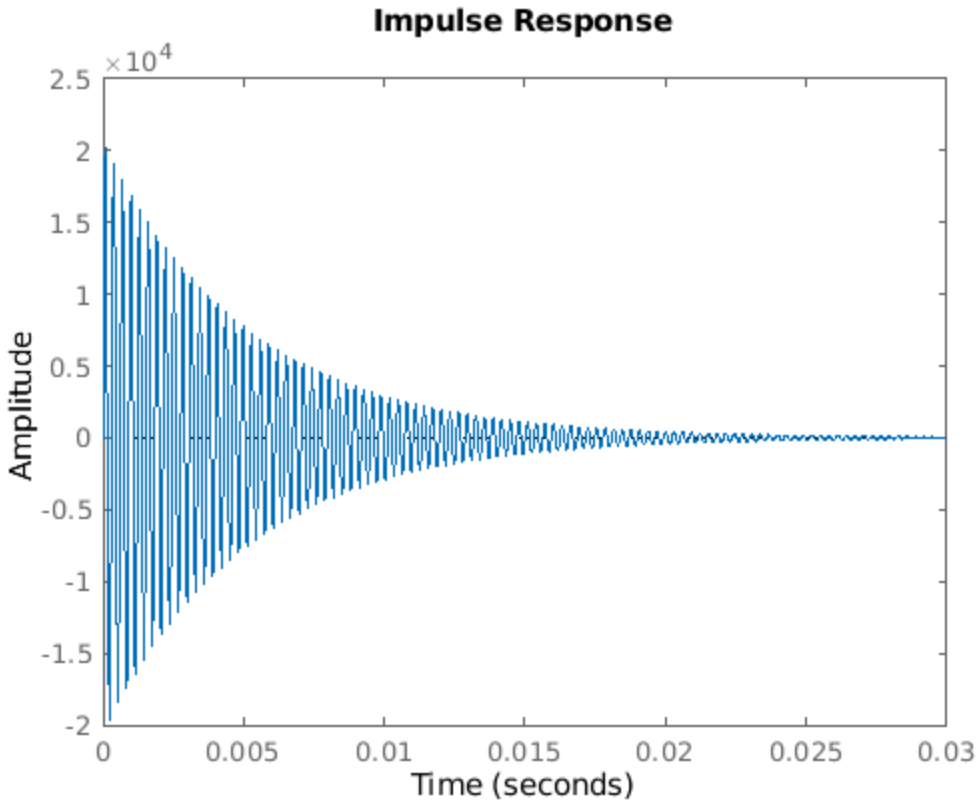
```
rlocus(plant, 0:0.01:1)
```



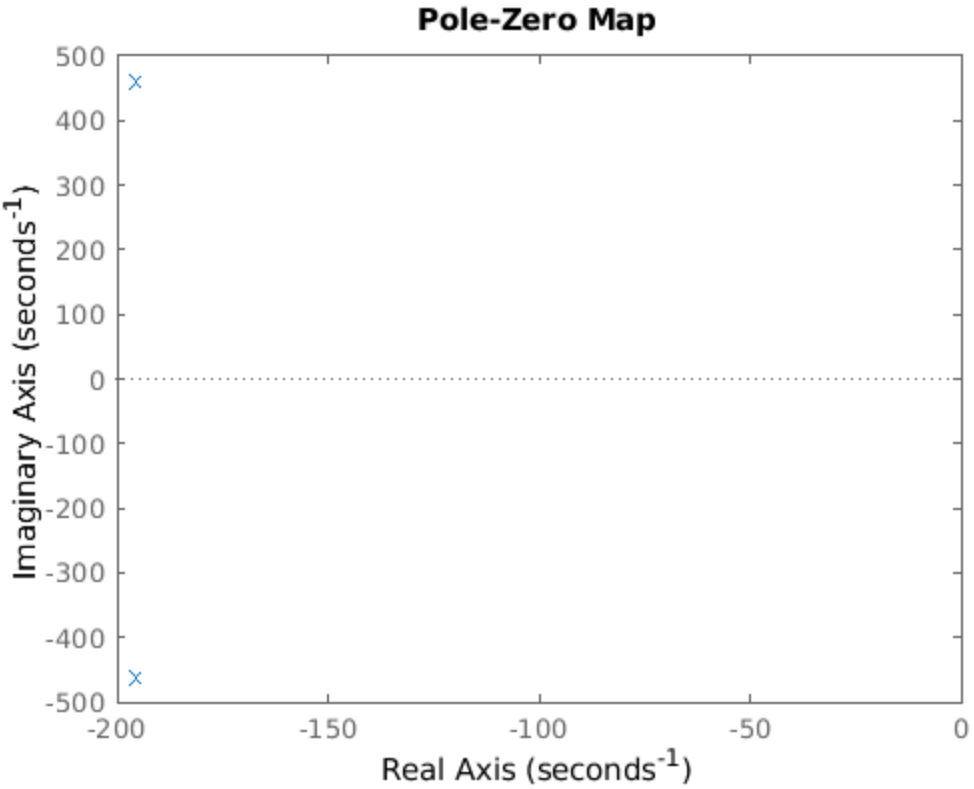

```
step(feedback(0.33 * plant, 1))
```




```
impulse(feedback(1000 * plant, 1))
```




```
pzmap(feedback(0.5 * plant, 1))
```



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